



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/642,618

08/19/2003

Hideaki Sakurai

241584US0CONT

3769

22850

7590

08/06/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

BLUM, DAVID S

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 08/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/642,618

Applicant(s)

SAKURAI ET AL.

Examiner

David S Blum

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 May 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 26-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/901,908.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3/4/04.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

This action is in response the amendment filed 05/19/04.

## **DETAILED ACTION**

### ***Double Patenting***

1. Claims 27 and 28 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 4 of copending Application No. 09/457743. Although the conflicting claims are not identical, they are not patentably distinct from each other because the device limitations of the instant application are recited in the device limitations of the 09/457743 claims.

Limitations regarding process limitations are given no patentable weight.

Even though product-by-process claims are limited by and defined by the process, determination of Patentability is based upon the product itself. The patentability of a product does not depend on its method of production." MPEP 2113

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 26-30, 33-35, 38, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Konishi (US005891531A).

Konishi teaches the device of claims 26-30, 33-35, 38, and 40 in that a polycrystalline or single crystal material is covered with a fluoride layer comprising the formula  $MO_xF_y$ . M is a rare earth metal, alkaline earth metal, alkali earth metal, or magnesium (column 7 lines 4-11). X is greater than 0, but less than 2 (column 8, very little impurities, such as oxygen). Also, the specification teaches X may be equal to 0, thus there may be no oxygen present (page 19, line 4).

Note that the specification contains no disclosure of either the critical nature of the claimed oxygen level or of any unexpected results arising there from. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in the claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1515, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Y is greater than 0, but also may be less than 4 (column 6, line 62), as in claim 26 and 38. The substrate may be MgO as in claim 27.

Art Unit: 2813

The limitation in claim 27 as to how the body is formed is a product by process limitation, and given little patentable weight, other than the body must be an oxide of one of the listed group. The limitation in claim 28 regarding how the fluoride layer is obtained is also considered a product by process limitation and given no patentable weight. The limitation in claim 29 regarding how the FPD is obtained is also considered a product by process limitation and given no patentable weight. As recited above, the display (field of invention) has a fluoride layer on a substrate as recited above.

Even though product-by-process claims are limited by and defined by the process, determination of Patentability is based upon the product itself. The patentability of a product does not depend on its method of production." MPEP 2113

The fluoride layer is 5 microns (column 12 line 49) as in claim 30 (0.1 nanometers to 100 microns)

The fluoride layer may cover a polycrystalline body, a sintered body (oxide glasses) or a single crystal as in claims 33, 34, and 35 (column 10 lines 15-18).

The fluoride layer of Konishi is on a substrate, and as best understood by the examiner, claim 40 limits the invention to the polycrystalline body, sintered body, or single crystal is free of a substrate. Konishi teaches a substrate of calcium fluoride, fluoride glasses (sintered body), oxide glasses (sintered body), silicon (polysilicon would be included), and MgO (single crystal) (column 10 lines 15-17. Although these are referred as substrates, they are the equivalent to the polycrystalline body, sintered body, or single

Art Unit: 2813

crystal of the instant application. In Konishi and the instant application, the fluoride film is formed on this layer, and in both there is no underlying substrate. Thus, the layer on which Konishi deposits the film is of a material recited in claim 40 and free of any underlying substrate.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 31-32, 36-37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konishi (US005891531A).

Konishi teaches the device of claims 31-32, 36-37 and 39 as recited above.

Regarding claim 31, Konishi teaches a thickness of 5 microns. The limitation of claim 31 recites 1 nanometer to 1 micron. However, the specification teaches the thickness may be between 0.1 nanometer to 100 microns and teaches no criticality between the broader range and the narrower range. In fact, the specification teaches (page 14 lines 6-10),

"The reason for limiting the thickness of fluoride layer 112 to within the range of 0.1 nm to 100 microns is that if the thickness exceeds 100 microns, the reaction time between MgO and so forth and gaseous fluoridation agent is prolonged thereby resulting in poor workability."

Art Unit: 2813

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or of any unexpected results arising there from. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in the claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1515, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

As the narrower range of dimensions has no criticality, the dimensions are considered one of optimization.

These ranges are considered to involve routine optimization while it has been held to be within the level of ordinary skill in the art. As noted in In re Aller (105 USPQ233), the selection of reaction parameters such as temperature and concentration would have been obvious:

"Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art. Such ranges are termed "critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."

In re Aller 105 USPQ233, 255 (CCPA 1955). See also In re Waite 77 USPQ 586 (CCPA 1948); In re Scherl 70 USPQ 204 (CCPA 1946); In re Irmischer 66 USPQ 314 (CCPA 1945); In re Norman 66 USPQ 308 (CCPA 1945); In re Swenson 56 USPQ 372 (CCPA 1942); In re Sola 25 USPQ 433 (CCPA 1935); In re Dreyfus 24 USPQ 52 (CCPA 1934).

One skilled in the requisite art at the time of the invention would have used any ranges or exact figures suitable to the method in the process of dimensions and concentrations using prior knowledge, experimentation, and observation with the apparatus used in

Art Unit: 2813

order to optimize the process and produce the film structure desired to the parameters desired.

Regarding claim 32, as Konishi does not teach any method of masking a portion of the substrate, it is considered that Konishi teaches covering the entire surface with a fluoride layer.

Regarding claims 36 and 37, where  $x$  is greater or equal to 0.25 and less than 2, or greater or equal to 0.50 and less than 2, the instant specification teaches  $x$  is greater or equal to 0 and less than 2 (page 19, lines 5-6), with no criticality taught within a narrower range. The case law recited above for both criticality and optimization applies here.

Regarding claim 39, limiting the fluoride layer to  $\text{MO}_{0.5}\text{F}$ ,  $\text{MO}_{0.25}\text{F}$ ,  $\text{MOF}_2$ , and  $\text{MOF}_{0.66}$ , the specification teaches these as examples of  $X$  being greater or equal to 0 and less than 2, and  $Y$  being greater than 0 and less than or equal to 4. No criticality is taught here as these are listed as examples only (page 19 lines 4-6) along with other examples. Konishi teaches fluorides that are within the taught numerical values of  $X$  and  $Y$ . Listing of empirical formulas regarding  $X$  and  $Y$  is considered optimization of non-critical values as recited above.



***Response to Arguments***

6. Applicant's arguments filed 5/28/04 have been fully considered but they are not persuasive.

The applicant argues that Konishi does not teach a fluoride material of  $\text{MosubxFsuby}$  even though Konishi discloses "very little impurities, such as oxygen". However, "very little impurities" means greater than 0, and Konishi then reads on the instant claims. MPEP 2131.03 I.

The applicant further argues that Konishi did not intend to include oxygen in the film. However, the intent is not limiting to the extent of the teaching. Konishi teaches oxygen as an impurity and that reads on greater than 0.

The applicant further argues that in Example 1, Konishi shows that by XPS analysis, no oxygen was contained in the tested film. However, the embodiment is not limiting to all that is disclosed, that oxygen may be present at a level greater than 0.

The applicant argues that example 2 shows that when oxygen is present, it is part of a carbonyl group and not in the form of a metal-oxyfluoride. However, the embodiment is not limiting to all that is disclosed, that oxygen may be present at a level greater than 0 in the otherwise metal-fluoride.

Art Unit: 2813

The applicant argues that there is no need to show criticality of any range as Konishi does not fall within the scope of the instant invention and Konishi teaches away from the instant application. However, an impurity level is within the scope of the invention (greater than 0) and although Konishi does not desire oxygen in the film, some may be present and that does not teach away from the instant invention teaching an oxygen content of greater than 0.

The applicant argues against the provisional obvious double patenting as claims 27 and 28 are toward a "vapor deposition material" and claims 1 and 4 of 09/457,743 are toward a FPD protecting film. The applicant argues that a vapor deposition material may be used as a source material for depositing a film that may function as an FPD protecting film, but the function may be different from the function of the FPD protecting film. Claim 4 of 09/457,745 recites the "fluoride layer is obtained by reacting a gaseous fluorinating agent..." Thus this is a vapor deposition material. Although not labeled as such, it is described so that one of ordinary skill in the art would recognize it as a vapor deposition film. Although claims 1 and 4 of 09/457,745 recite a film for protecting a FPD in the preambles, there are no structural differences in the claims to discern one claim from the other. The function of the layer is not part of the claimed structure.

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be used does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) MPEP 2114.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Blum whose telephone number is (571)-272-1687) and e-mail address is [David.blum@USPTO.gov](mailto:David.blum@USPTO.gov) .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr., can be reached at (571)-272-1702. Our facsimile number all patent correspondence to be entered into an application is (703) 872-9306. The facsimile number for customer service is (703)-872-9317.

Art Unit: 2813

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "D. S. Blum", with a horizontal line extending to the right.

David S. Blum

August 5, 2004